

**RULE 69.4.1. STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES –~~BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (BARCT)~~** (Adopted & Effective 11/15/00; Rev. Adopted & Effective (date of adoption))

(a) **APPLICABILITY**

(1) Except as provided in Section (b) - Exemptions, this rule shall apply to stationary internal combustion engines with a brake horsepower (bhp) rating of 50 or greater.

~~(2) An engine subject to this rule and located at a major stationary source of oxides of nitrogen (NO<sub>x</sub>) is also subject to the applicable requirements of Rule 69.4.~~

~~(32) An engine subject to this rule or exempt from this rule by Subsection (b)(1) shall not be subject to Rule 68 - Fuel-Burning Equipment – Oxides of Nitrogen.~~

~~(3) An engine registered under Rule 12 – Registration of Specified Equipment shall not be subject to this rule.~~

(b) **EXEMPTIONS**

(1) This rule shall not apply to the following:

(i) Engines used exclusively in connection with a structure designed for and used as a dwelling for not more than four families.

(ii) Engines used exclusively in agricultural operations for the growing of crops or the raising of fowl or animals, and the site is exempt pursuant to Rule 11 - Exemptions from Rule 10 Permit Requirements.

(iii) Any engine when operated exclusively within a permitted test cell solely for the research, development, or testing of gas turbine engines or their components.

(iv) Any engine when operated exclusively within a permitted test cell solely for the research, development, or testing of reciprocating internal combustion engines or their components.

(v) Any engine used exclusively in conjunction with military tactical support equipment.

~~(2) The provisions of Subsections (d)(1) through (d)(3), (e)(1), (e)(2), (f)(1), (f)(3), (g)(3), (g)(4), (g)(5) and (i)(1) of this rule shall not apply to the following:~~

~~(i) Any existing engine which operates less than 200 hours per calendar year, as determined by a non-resettable meter that measures elapsed operating time.~~

~~(ii) Any existing emergency standby engine provided that operation of the engine for non-emergency purposes does not exceed 52 hours per calendar year. Operation for testing or maintenance purposes may be allowed for not more than 100 hours per year, with written authorization from the Air Pollution Control Officer, provided that an owner or operator demonstrates to the satisfaction of the Air Pollution Control Officer that such additional operation is necessary.~~

~~(iii) Any existing emergency standby engine at a nuclear power generating station subject to the requirements of the Nuclear Regulatory Commission provided that operation of the engine for non-emergency purposes does not exceed 200 hours per calendar year.~~

(2) The provisions of Subsection (d)(1) of this rule shall not apply to the following:

(i) Any non-emergency engine during startup and shutdown periods, provided that the startup and shutdown periods do not exceed 60 continuous minutes each for engines with a selective catalytic reduction (SCR) system installed, or 30 continuous minutes each for engines without SCR installed.

(ii) Any new, modified or replacement engine with add-on control equipment only during a commissioning period, as determined by the Air Pollution Control Officer, provided that:

(A) prior to the commencement of a commissioning period, the owner or operator shall provide written notification to the Air Pollution Control Officer when the commissioning period will commence and its expected duration;

(B) the maximum allowable duration of a commissioning period, not to exceed 100 hours, shall be determined and approved by the Air Pollution Control Officer; and

(C) the air quality and public health risk impacts of emissions from the project, including emissions during the commissioning period, shall comply with the applicable requirements of Rules 20.2 and 20.3 (New Source Review Rules), and Rule 1200 - Toxic Air Contaminants – New Source Review of these Rules and Regulations.

To claim the applicability of this exemption, records shall be maintained in accordance with Subsections (g)(5) or (g)(6) of this rule, as applicable. Nothing in this  
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rule shall be construed to limit the actual time needed during a commissioning period, or to conduct a startup or shutdown.

(3) The provisions of Subsections (d)(1), (e)(1), (e)(2), (e)(5), (f)(1), (g)(3), (g)(4), and (i)(1) shall not apply to the following:

(i) Any emergency standby engine that commenced operation in San Diego County on or before November 15, 2000, provided that operation of the engine for testing or maintenance purposes does not exceed 52 hours per calendar year. Operation for testing or maintenance purposes may be allowed for not more than 100 hours per year, with prior written authorization from the Air Pollution Control Officer, provided that an owner or operator demonstrates to the satisfaction of the Air Pollution Control Officer that such additional operation is necessary.

(ii) Any engine that commenced operation in San Diego County on or before November 15, 2000, and operates less than 200 hours per calendar year, as determined by a non-resettable meter that measures elapsed operating time.

To claim the applicability of this exemption, records shall be maintained in accordance with Subsections (g)(1) and (g)(2), as applicable.

~~(34)~~ The provisions of Subsections (e)(1), (e)(2), ~~(e)(5)~~, (f)(1), (g)(3), (g)(4), ~~(g)(5)~~ and (i)(1) ~~of this rule~~ shall not apply to:

(i) Any emergency standby engine that commenced operation in San Diego County after November 15, 2000, or new or replacement emergency standby engine, provided that operation of the engine for non-emergency testing or maintenance purposes does not exceed 52 hours per calendar year. Operation for testing or maintenance purposes may be allowed for not more than 100 hours per year, with prior written authorization from the Air Pollution Control Officer, provided that an owner or operator demonstrates to the satisfaction of the Air Pollution Control Officer that such additional operation is necessary.

(ii) Any engine that commenced operation in San Diego County after November 15, 2000, or new or replacement engine which, provided that operation of the engine is operates less than 200 hours per calendar year, as determined by a non-resettable meter that measures elapsed operating time.

To claim the applicability of this exemption, records shall be maintained in accordance with Subsections (g)(1) and (g)(2) of this rule.

~~(4) The provisions of Subsections (d)(1) through (d)(3) of this rule shall not apply to existing low-use diesel engines equipped with any two of the following: turbocharger, aftercooler, or injection timing retard by 4 degrees.~~

~~An owner or operator of an engine who is claiming an exemption pursuant to Subsections (b)(2), (b)(3) or (b)(4) shall maintain records in accordance with Subsections (g)(1) and (g)(2) of this rule.~~

(5) The provisions of Subsection (e)(2) shall not apply to any engine with manufacturer installed add-on control equipment and certified with such equipment by the Environmental Protection Agency (EPA).

~~(46) The provisions of Subsection (g)(4) of this rule shall not apply to any engine that is equipped with a continuous emission monitoring system (CEMS) pursuant to Subsection (e)(4).~~

~~(57) The provisions of Section (i) – Source Test Requirements of this rule shall not apply to any engine certified by the Environmental Protection Agency (EPA) or the California Air Resources Board (CARB) at emission concentrations equal to or below the applicable emission standards of Subsection (d)(1), provided the following requirements are met:~~

(i) The engine family has been tested and certified according to an EPA or CARB approved procedure, and the certification documents are provided to the District.

(ii) The engine and its emission control system are maintained as specified in Section (f) – Inspection and Maintenance Requirements.

(iii) There is no evidence of engine tampering.

**(c) DEFINITIONS**

For the purposes of this rule, the following definitions shall apply:

(1) **"Add-on Control Equipment"** means any technology that is used to reduce emissions from the exhaust gas stream of an engine and is installed downstream of the engine.

(2) **"Agricultural Operations"** means the growing and harvesting of crops or the raising of fowl or animals, for the primary purpose of earning a living, or of conducting agricultural research or instruction by an educational institution.

(3) **"Approach Light System with Sequenced Flasher Lights in Category 1 and Category 2 Configurations (ALSF-1 and ALSF-2)"** means high intensity approach lighting systems with sequenced flashers used at airports to illuminate specified runways during Category II or III weather conditions, where Category II means a decision height of 100 feet and runway visual range of 1,200 feet, and Category III means no decision height or decision height below 100 feet and runway visual range of 700 feet.

(2) **"Best Available Retrofit Control Technology (BARCT)"** means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.

(4) **"Black Start Engine"** means an engine whose only purpose is to start up a combustion turbine and associated equipment.

(35) **"Brake Horsepower Rating, (bhp)"** means the maximum continuous brake horsepower output rating of the internal reciprocating combustion engine as specified by the engine manufacturer and listed on the engine nameplate, if available, regardless of any derating or in other documentation establishing the maximum continuous brake horsepower as approved by the Air Pollution Control Officer.

(46) **"Calendar Year"** means the same as defined in Rule 2 - Definitions.

(57) **"California Diesel Fuel"** means any fuel that is commonly or commercially known, sold or represented as diesel fuel No. 1-D or No. 2-D, and which meets the requirements specified in 13 CCR, Sections 2281 and 2282 of Title 13 of the California Code of Regulations.

(68) **"Capacity Factor"** means the ratio, expressed as a percentage, of the annual fuel consumption to the manufacturer's specified maximum annual fuel consumption or manufacturer's specified maximum hourly fuel consumption times 8,760 hours, whichever is less.

(9) **"CCR"** means California Code of Regulations.

(710) **"Certified Engine"** means: ~~an means an engine certified to comply with the Tier 1, Tier 2, or Tier 3 emission standards specified in Section 89.112 of the Code of Federal Regulations (40 CFR Part 89) - Control of Emissions of Air Pollution from Non-Road Diesel Engines or with the Tier 1, Tier 2, or Tier 3 emission standards specified in~~

~~Section 2423 of Title 13 of the California Code of Regulations—California Regulations for New 1996 and Later Off-Road Compression-Ignition Engines.~~

(i) A compression-ignition engine certified to comply with the Tier 1, Tier 2, Tier 3, Tier 4 interim, or Tier 4 final emission standards specified in 40 CFR Part 89, or in 40 CFR Part 1039, as applicable; or as specified in 13 CCR, Section 2423;  
or

(ii) A spark-ignition engine certified to comply with the emission standards specified in 40 CFR Part 60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines), 40 CFR Part 90, or 40 CFR Part 1048, as applicable; or as specified in 13 CCR, Section 2433.

(11) "CFR" means Code of Federal Regulations.

(12) "CO" means carbon monoxide.

(13) "Commissioning Period" means the period of time after the first firing of fuel when a new, modified or replacement engine undergoes initial tuning, debugging, performance testing and/or optimization, and before the add-on control equipment is installed and fully operational.

~~(8) "Cyclic Engine" means an engine, such as gantry cranes, having an external load which varies by approximately 40 percent or more of rated capacity under normal operating conditions during any load cycle.~~

(14) "Dual-Fueled Engine" means an engine designed to operate simultaneously on gaseous fuel and diesel fuel.

(15) "Emergency Situation" means providing electrical power or mechanical work during any of the following events and subject to the following conditions:

(i) The failure or loss of all or part of normal electrical power service or normal natural gas supply to the facility:

(A) which is caused by any reason other than the enforcement of a contractual obligation the owner or operator has with a third party or any other party; and

(B) which is demonstrated by the owner or operator to the Air Pollution Control Officer's satisfaction to have been beyond the reasonable control of the owner or operator.

(ii) The failure of a facility's internal power distribution system:

(A) which is caused by any reason other than the enforcement of a contractual obligation the owner or operator has with a third party or any other party; and

(B) which is demonstrated by the owner or operator to the Air Pollution Control Officer's satisfaction to have been beyond the reasonable control of the owner or operator.

(iii) The pumping of water or sewage to prevent or mitigate a flood or sewage overflow.

(iv) The pumping of water for fire suppression or protection.

(v) The powering of ALSF-1 and ALSF-2 airport runway lights under Category II or III weather conditions.

(vi) The pumping of water to maintain pressure in the water distribution system for the following reasons:

(A) a pipe break that substantially reduces water pressure; or

(B) high demand on the water supply system due to high use of water for fire suppression; or

(C) the breakdown of pumping equipment at sewage treatment facilities or water delivery facilities.

~~(916) "Emergency Standby Engine" means an engine used exclusively in emergency situations, except as provided in Subsections (b)(2)(ii), (b)(2)(iii) and (b)(3)(i) or (b)(4)(i), to drive an electrical generator, an air compressor, or a water pump.~~

~~(10) "Emergency Situation" means any one of the following:~~

~~(i) An unforeseen electrical power failure from the serving utility or of on-site electrical transmission equipment.~~

~~(ii) An unforeseen flood or fire, or a life-threatening situation.~~

~~(iii) Operation of emergency generators for Federal Aviation Administration licensed or military airports for the purpose of providing power in anticipation of a power failure due to severe storm activity.~~

~~Emergency situation shall not include operation for purposes of supplying power for distribution to an electrical grid, operation for training purposes, or other foreseeable events.~~

~~(117)~~ **"Engine Family"** means a group of engines expected to have similar emissions and other characteristics throughout their useful life as specified in ~~Section 89.116, 40 CFR Part 89, Section 89.116.~~

~~(118)~~ **"Engine Tampering"** means removing or rendering inoperative any device or design element of the engine or its emission control system; or the manufacturing or installation of a part or a component which objective is to bypass, defeat, or render inoperative a device or design element of the engine or its emission control system.

~~(119)~~ **"Existing Engine"** means an engine for which commenced operation in San Diego County on or before November 15, 2000 a complete application was submitted to the District on or before (date of adoption).

~~(120)~~ **"Fossil Derived Gaseous Fuel"** means gaseous fuel including, but not limited to, natural gas, methane, ethane, propane, butane, and gases stored as liquids at high pressure such as liquefied petroleum gas, but excluding waste derived gaseous fuel.

~~(121)~~ **"Generator Set"** means an engine coupled to a generator that is used as a source of electricity.

~~(125)~~ **"High-use Engine"** means ~~an engine operating at a capacity factor of greater than 15%.~~

~~(122)~~ **"Lean-burn Engine"** means an engine that is designed to operate with an air-to-fuel ratio that is more than 1.1 times the stoichiometric air-to-fuel ratio.

~~(127)~~ **"Load Cycle"** means ~~the time interval between consecutive commencement of application of external load to an engine.~~

~~(128)~~ **"Low-use Engine"** means ~~an engine operating at a capacity factor of 15% or less.~~

~~(123)~~ **"Military Tactical Support Equipment"** means the same as defined in Rule 2 - Definitions.

~~(124)~~ **"New Engine"** means an engine for which commenced operation in San Diego County a complete application was submitted to the District after November 15, 2000 (date of adoption).

~~(125)~~ **"NMHC"** means non-methane hydrocarbons.

~~(126)~~ **"Permit Year"** means the 12-month period ending on the last day of the Permit to Operate expiration month.

~~(127)~~ **"Portable Emission Unit"** means the same as defined in Rule 20.1 - New Source Review (NSR) – General Provisions.

(2228) **"Replacement Engine"** means an engine that meets the definition of a replacement emission unit in Rule 20.1 - New Source Review (NSR) – General Provisions, and is not an existing engine as defined in this rule.

(2329) **"Rich-Burn Engine"** means an engine that is designed to operate with an air-to-fuel ratio less than or equal to 1.1 times the stoichiometric air-to-fuel ratio.

(30) **"School Grounds"** means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School Grounds" includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

(31) **"Shutdown"** means a sequence of actions necessary to cease operation of an engine and includes the amount of time needed to safely do so. A shutdown ends when fuel flow and emissions cease.

(32) **"Startup"** means a sequence of actions necessary to begin operation of an engine and includes the amount of time needed for an engine and ancillary equipment to achieve stable operation. A startup begins when fuel flow to the combustion chamber starts.

(2433) **"Stationary Internal Combustion Engine" or "Engine"** means a spark or compression ignited, reciprocating internal combustion engine which is not a portable emission unit.

(25) ~~**"Stationary Source"** means the same as defined in Rule 2.~~

(2634) **"Stoichiometric Air-to-Fuel Ratio"** means the chemically balanced air-to-fuel ratio at which all fuel and all oxygen in the air and fuel mixture are theoretically consumed by combustion.

(35) **"Synthesis Gas" or "Syngas"** means a fuel gas mixture produced by gasification of a carbon containing fuel to a gaseous product that has some heating value.

(36) **"Testing or Maintenance"** means operating an emergency standby engine to:

(i) Evaluate the ability of the engine or its supported equipment to perform during an emergency. "Supported Equipment" includes, but is not limited to, generators, pumps, transformers, switchgear, uninterruptible power supply, and breakers; or

(ii) Facilitate the training of personnel on emergency activities; or

(iii) Provide electric power for the facility when the utility distribution company takes its power distribution equipment offline to service that equipment for any reason that does not qualify as an emergency situation; or

(iv) Provide additional hours of operation to perform testing on an engine that has experienced a breakdown or failure during maintenance. Upon approval by the Air Pollution Control Officer, these additional hours of operation will not be counted in the maximum allowable annual hours of operation for the emergency standby engine that provided the electrical power. Operation for testing or maintenance purposes may be allowed for not more than 10 hours per year, with prior written authorization from the Air Pollution Control Officer, provided that an owner or operator demonstrates to the satisfaction of the Air Pollution Control Officer that such additional operation is necessary; or

(v) Provide electric power for the facility during an electrical upgrade, such as the replacement or addition of electrical equipment and systems resulting in increased generation, transmission and/or distribution capacity; or

(vi) Provide electric power for the facility during the repair of supported equipment as defined in Subsection (c)(36)(i).

(2737) "Uncontrolled Oxides of Nitrogen (NOx) Emissions" means NOx emissions from an engine before application of add-on control equipment.

(2838) "Volatile Organic Compound (VOC)" means the same as defined in Rule 2 - Definitions.

(2939) "Waste Derived Gaseous Fuel" means gaseous fuel including, but not limited to, digester gas and landfill gas, but excluding fossil derived gaseous fuel and synthesis gas.

**(d) STANDARDS**

(1) A person shall not operate a stationary internal combustion engine subject to this rule unless:

(i) Uncontrolled NOx emissions, calculated as nitrogen dioxide, from the following engines are reduced with add-on control equipment by not less than the following:

	<u>Weight Percent Engine Category Reduction</u>
Rich-burn engines using fossil derived gaseous fuel or gasoline	96
Lean-burn engines using fossil derived gaseous fuel	90
Engines using exclusively waste derived gaseous fuel <u>or syngas</u>	90
Engines using diesel or kerosene fuel	90
<u>Dual-fueled engines</u>	<u>90</u>
<u>Rich-burn engines used exclusively in agricultural operations</u>	<u>80</u>
<u>Lean-burn engines used exclusively in agricultural operations</u>	<u>70</u>

or

(ii) The emissions of NO<sub>x</sub>, in parts per million by volume (ppmv), calculated as nitrogen dioxide at 15% oxygen on a dry basis, or in grams of NO<sub>x</sub> per brake horsepower-hour, as indicated, are not greater than the following:

<u>Engine Category</u>	<u>Concentration of NO<sub>x</sub></u>
<del>Rich-burn engines using fossil derived gaseous fuel or —gasoline</del>	<del>25 ppmv</del>
<del>Rich-burn engines using exclusively waste derived —gaseous fuel</del>	<del>50 ppmv</del>
<del>Lean-burn engines using gaseous fuel</del>	<del>65 ppmv</del>
<del>Existing low-use engines using diesel or kerosene fuel</del>	<del>9.0 g/bhp-hr or 700 ppmv</del>
<del>Existing cyclic engines using diesel or kerosene fuel</del>	<del>9.0 g/bhp-hr or 700 ppmv</del>
<del>High-use engines using diesel or kerosene fuel</del>	<del>6.9 g/bhp-hr or 535 ppmv</del>
<del>New or replacement low-use engines using diesel or —kerosene fuel</del>	<del>6.9 g/bhp-hr or 535 ppmv</del>
<del>New or replacement cyclic engines using diesel or —kerosene fuel</del>	<del>6.9 g/bhp-hr or 535 ppmv</del>

(ii) The emissions shall not exceed the following:

(A) Existing Non-Emergency Engines

<u>Engine Type</u>	<u>Concentration of NO<sub>x</sub><sup>1</sup></u>	<u>Concentration of VOC<sup>2</sup></u>	<u>Concentration of CO<sup>3</sup></u>
<u>Rich-burn engines using fossil derived gaseous fuel or gasoline</u>	<u>25 ppmv</u>	<u>250 ppmv</u>	<u>2,000 ppmv</u>
<u>Rich-burn engines using exclusively waste derived gaseous fuel</u>	<u>50 ppmv</u>	<u>250 ppmv</u>	<u>2,000 ppmv</u>

<u>Lean-burn engines using gaseous fuel</u>	<u>65 ppmv</u>	<u>750 ppmv</u>	<u>2,000 ppmv</u>
<u>Engines using diesel fuel</u>	<u>6.9 g/bhp-hr</u>	<u>N/A</u>	<u>4,500 ppmv</u>

(B) Existing Emergency Standby Engines

<u>Engine Type</u>	<u>Concentration of NOx<sup>1</sup></u>	<u>Concentration of VOC<sup>2</sup></u>	<u>Concentration of CO<sup>3</sup></u>
<u>Rich-burn engines using gaseous fuel</u>	<u>25 ppmv</u>	<u>250 ppmv</u>	<u>4,500 ppmv</u>
<u>Lean-burn engines using gaseous fuel</u>	<u>2.0 g/bhp-hr</u>	<u>N/A</u>	<u>4,500 ppmv</u>
<u>Engines using diesel fuel</u>	<u>6.9 g/bhp-hr</u>	<u>N/A</u>	<u>4,500 ppmv</u>

<sup>1</sup>Calculated as nitrogen dioxide in parts per million by volume (ppmv) corrected to 15% oxygen on a dry basis, or in grams of NOx per brake horsepower-hour, as indicated.

<sup>2</sup>Calculated as methane in ppmv corrected to 15% oxygen on a dry basis.

<sup>3</sup>Calculated as carbon monoxide in ppmv corrected to 15% oxygen on a dry basis.

(C) New or Replacement Non-Emergency Engines – Gaseous Fuel

<u>Engine Type</u>	<u>Concentration of NOx<sup>1</sup> (ppmv)</u>	<u>Concentration of VOC<sup>2</sup> (ppmv)</u>	<u>Concentration of CO<sup>3</sup> (ppmv)</u>	<u>Concentration of formaldehyde<sup>4</sup> (ppmv)</u>
<u>Rich-burn engines using fossil derived gaseous fuel or gasoline</u>	<u>11</u>	<u>60</u>	<u>270</u>	<u>70</u>
<u>Rich-burn engines using waste derived gaseous fuel or syngas</u>	<u>50</u>	<u>80</u>	<u>610</u>	<u>70</u>
<u>Lean-burn engines using fossil derived gaseous fuel</u>	<u>65</u>	<u>60</u>	<u>270</u>	<u>70</u>
<u>Lean-burn engines using waste derived gaseous fuel or syngas</u>	<u>65</u>	<u>80</u>	<u>610</u>	<u>70</u>
<u>Rich-burn engines used exclusively in agricultural operations</u>	<u>90</u>	<u>250</u>	<u>2000</u>	<u>N/A</u>
<u>Lean-burn engines used exclusively in agricultural operations</u>	<u>150</u>	<u>750</u>	<u>2000</u>	<u>N/A</u>

<sup>1</sup>Calculated as nitrogen dioxide in ppmv corrected to 15% oxygen on a dry basis.

<sup>2</sup>Calculated as methane in ppmv corrected to 15% oxygen on a dry basis, and excluding emissions of formaldehyde.

<sup>3</sup>Calculated as carbon monoxide in ppmv corrected to 15% oxygen on a dry basis.

<sup>4</sup>Calculated as formaldehyde in ppmv corrected to 15% oxygen on a dry basis.

(D) New or Replacement Non-Emergency Engines – Diesel Fuel

<u>Engine Type</u>	<u>Concentration of NO<sub>x</sub> (g/bhp-hr)</u>	<u>Concentration of NMHC (g/bhp-hr)</u>	<u>Concentration of CO (g/bhp-hr)</u>
<u>Certified engines using diesel fuel, 50 ≤ bhp &lt; 75</u>	<u>3.5</u>	<u>N/A</u>	<u>3.7</u>
<u>Certified engines using diesel fuel, 75 ≤ bhp &lt; 175</u>	<u>0.3</u>	<u>0.14</u>	<u>3.7</u>
<u>Certified engines using diesel fuel, 175 ≤ bhp &lt; 750</u>	<u>0.3</u>	<u>0.14</u>	<u>2.6</u>
<u>Certified engines using diesel fuel, bhp ≥ 750</u>	<u>2.6</u>	<u>0.14</u>	<u>2.6</u>
<u>Certified generator sets using diesel fuel, bhp ≥ 750</u>	<u>0.5</u>	<u>0.14</u>	<u>2.6</u>

(E) New or Replacement Emergency Standby Engines

<u>Engine Type</u>	<u>Concentration of NO<sub>x</sub><sup>1</sup></u>	<u>Concentration of VOC<sup>2</sup></u>	<u>Concentration of CO<sup>3</sup></u>
<u>Rich-burn engines using gaseous fuel</u>	<u>25 ppmv</u>	<u>86 ppmv</u>	<u>540 ppmv</u>
<u>Lean-burn engines using gaseous fuel</u>	<u>2.0 g/bhp-hr</u> <u>or 160 ppmv</u>	<u>1.0 g/bhp-hr</u> <u>or 86 ppmv</u>	<u>4.0 g/bhp-hr</u> <u>or 540 ppmv</u>
<u>Black start engines using gaseous fuel</u>	<u>2.0 g/bhp-hr</u> <u>or 160 ppmv</u>	<u>1.0 g/bhp-hr</u> <u>or 86 ppmv</u>	<u>4.0 g/bhp-hr</u> <u>or 540 ppmv</u>
<u>Certified engines using diesel fuel, 50 ≤ bhp &lt; 100</u>	<u>3.5 g/bhp-hr</u>	<u>N/A</u>	<u>3.7 g/bhp-hr</u>
<u>Certified engines using diesel fuel, 100 ≤ bhp &lt; 175</u>	<u>3.0 g/bhp-hr</u>	<u>N/A</u>	<u>3.7 g/bhp-hr</u>
<u>Certified engines using diesel fuel, 175 ≤ bhp &lt; 750</u>	<u>3.0 g/bhp-hr</u>	<u>N/A</u>	<u>2.6 g/bhp-hr</u>
<u>Certified engines using diesel fuel, bhp ≥ 750</u>	<u>4.8 g/bhp-hr</u>	<u>N/A</u>	<u>2.6 g/bhp-hr</u>

<sup>1</sup>Calculated as nitrogen dioxide in ppmv corrected to 15% oxygen on a dry basis, or in grams of NO<sub>x</sub> per brake horsepower-hour, as indicated.

<sup>2</sup>Calculated as methane in ppmv corrected to 15% oxygen on a dry basis, or in grams of VOC per brake horsepower-hour, as indicated, and excluding emissions of formaldehyde.

<sup>3</sup>Calculated as carbon monoxide in ppmv corrected to 15% oxygen on a dry basis, or in grams of CO per brake horsepower-hour, as indicated.

~~(2) For all engines subject to Subsection (d)(1) of this rule, emissions of carbon monoxide (CO), calculated at 15% oxygen on a dry basis, shall not exceed 4,500 ppmv.~~

~~(3) For all rich burn engines subject to Subsection (d)(1) of this rule, emissions of VOC, calculated as methane at 15% oxygen on a dry basis, shall not exceed 250 ppmv.~~

(42) Any engine subject to this rule and operating on diesel fuel shall use only California Diesel Fuel.

(e) **MONITORING REQUIREMENTS**

(1) An owner or operator of an engine without add-on control equipment, except engines specified in Subsections ~~(b)(2) or (b)(3) or (b)(4)~~, shall monitor the operating parameters recommended by the engine manufacturer and any additional operating parameters identified by the Air Pollution Control Officer. Such operating parameters may include, but are not limited to:

- (i) engine air-to-fuel ratio;
- (ii) engine inlet manifold temperature and pressure; and
- (iii) oxygen content of the exhaust gas.

Where the Air Pollution Control Officer determines that it is not feasible to monitor operating parameters of an engine or such monitoring may not be indicative of air contaminant emissions, the requirements of this subsection may be waived provided that periodic inspection and maintenance are conducted as specified in Section (f) – Inspection and Maintenance Requirements.

(2) An owner or operator of an engine with add-on control equipment, except engines specified in Subsections (b)(3) or (b)(4), shall install, operate and maintain in calibration, devices that continuously monitor the operational characteristics of the engine and any NOx emission reduction system as determined necessary to ensure compliance by the Air Pollution Control Officer. Such operational characteristics ~~may~~ shall include, but are not limited to:

- (i) engine air-to-fuel ratio;
- (ii) temperature of exhaust gas at the inlet and outlet of the add-on control equipment;

(iii) oxygen content of exhaust gas at the inlet and outlet of the add-on control equipment; ~~and~~ or

(iv) flow rate of NOx reducing agent added to the engine exhaust gas.

(3) An owner or operator of an engine subject to this rule shall install, and maintain in good working order, a non-resettable totalizing fuel meter and/or non-resettable meter that measures elapsed operating time as determined appropriate by the Air Pollution Control Officer. If an engine hour meter is replaced, the owner or operator shall notify the Air Pollution Control Officer in accordance with Subsection (g)(7).

(4) An owner or operator of a new or replacement non-emergency gaseous-fueled engine rated at 1,000 bhp or greater and permitted to operate more than 2,000 hours per calendar year shall install, operate, and maintain in calibration a Continuous Emissions Monitoring System (CEMS) to continuously measure and record oxygen concentration, and NOx and CO emission concentrations corrected to 15% oxygen. The CEMS shall be certified, calibrated and maintained in accordance with all applicable federal regulations including, but not limited to, reporting requirements of 40 CFR Part 60, Sections 60.7(c), 60.7(d), and 60.13; performance specifications of 40 CFR Part 60 Appendix B; quality assurance procedures of 40 CFR Part 60 Appendix F; or other District CEMS rules; and a protocol approved in writing by the Air Pollution Control Officer.

(5) An owner or operator of a non-emergency gaseous-fueled engine, except engines specified in Subsections (b)(3)(ii), (b)(4)(ii) or (e)(4), shall have a trained operator use a portable analyzer to take NOx and CO emission readings to verify compliance with the emission standards of Subsection (d)(1) during any calendar quarter in which a source test is not performed, and comply with all of the following:

(i) All emission readings shall be taken with the engine operating either at the highest achievable continuous brake horsepower rating, or under the typical duty cycle or operational mode of the engine;

(ii) Emission readings shall be averaged over a consecutive 15-minute period by either taking a cumulative 15 consecutive minute sample reading or by taking at least five (5) readings evenly spaced out over the 15 consecutive minute period;

(iii) At least 6 calendar weeks shall separate the date of the last emission reading taken or source test conducted in the previous calendar quarter and the first emission reading taken in the subsequent calendar quarter in which a source test is not performed;~~and~~

(iv) If an engine is found to exceed the emission standards of Subsection (d)(1), the owner or operator shall bring the engine into compliance within 20 calendar days of the initial out-of-compliance reading as determined by the requirements of this Subsection (e)(5). If the engine is not brought into compliance within 20 calendar days, the exceedance shall be considered a violation of the rule; and

(v) A trained operator is a person who has completed an appropriate South Coast Air Quality Management District (SCAQMD) approved training program in the operation of portable analyzers, and has received a certification issued by SCAQMD.

**(f) INSPECTION AND MAINTENANCE REQUIREMENTS**

(1) An owner or operator of an engine subject to this rule, except engines specified in Subsections ~~(b)(2) or (b)(3)~~, (b)(4), (e)(4) or (e)(5), shall conduct periodic inspections of the engine and any add-on control equipment, as applicable, to ensure that the engine and control equipment is operated in compliance with the provisions of this rule. Inspections shall be conducted at least once every 4,000 hours of operation, or every six months, whichever is less.

(2) An owner or operator of an engine subject to this rule shall ~~conduct periodic~~, at a minimum, annual maintenance of the engine and any add-on control equipment, as applicable, as recommended by the engine and control equipment manufacturers or as specified by any other maintenance procedure approved in writing by the Air Pollution Control Officer. ~~The periodic~~ Notwithstanding the frequencies recommended by the engine and control equipment manufacturers, the annual maintenance shall be conducted at least once each calendar year. Engine maintenance shall include, but is not limited to, the following:

(i) Changing the oil and filter, or testing the oil in accordance with the requirements of 40 CFR Part 63, Sections 63.6625(i) or 63.6625(j);

(ii) Inspecting and cleaning air filters, and replacing as necessary;

(iii) Inspecting all hoses and belts, and replacing as necessary; and

(iv) Inspecting spark plugs, if equipped, and replacing as necessary.

(3) Notwithstanding the frequencies specified in Subsections (f)(1) and (f)(2), the Air Pollution Control Officer may require an owner or operator of an engine to conduct inspections and/or maintenance of the engine and any associated add-on control equipment more frequently if deemed necessary to assure compliance with this rule.

**(g) RECORD KEEPING REQUIREMENTS**

(1) An owner or operator of an engine subject to this rule shall keep the following records in electronic and/or hardcopy format and shall maintain these records on-site for at least the same period of time as the engine to which the records apply is located at the site:

- (i) engine manufacturer name and model number;
- (ii) brake horsepower rating;
- (iii) combustion method, (i.e., rich-burn or lean-burn);
- (iv) fuel type(s);
- (v) California Diesel Fuel certification, if applicable; and
- (vi) a manual of recommended maintenance as provided by the engine manufacturer, or other maintenance procedure as approved in writing by the Air Pollution Control Officer.

Where the information specified in Subsections (g)(1)(i) through (g)(1)(iv) is contained in a District Permit to Operate or ~~Certificate of Registration~~, and is the most current information, an additional record of this information shall not be required.

(2) An owner or operator of an engine exempt pursuant to Subsections ~~(b)(2) or (b)(3) or (b)(4)~~ shall ~~maintain an operating log containing~~, at a minimum, the following:

- (i) an operating log containing dates and elapsed times of every instance of engine operation either based on actual readings of engine hour or fuel meter, or validated against such actual readings during owner or operator visits to unmanned sites only. In addition, an owner or operator of an emergency standby diesel engine located within 500 feet of school grounds shall also maintain the time of day of every instance of engine operation for testing or maintenance; except for an engine that emits no more than 0.01 g/bhp-hr of diesel particulate matter, or meets the requirements specified in 17 CCR, Section 93115.13(f). If applicable, indicate whether the operation was for ~~non-emergency purposes~~ testing or maintenance or

during an emergency situation and the nature of the emergency, ~~if available;~~ and maintain the following:

(A) ~~for an total external power outage that was beyond the reasonable control of the owner or operator,~~ documentation from the serving utility of an outage in the area where the engine is located; and/or

(B) ~~for an internal power outage that was beyond the reasonable control of the owner or operator,~~ a description of what caused the failure, and receipts and/or work orders for the necessary repairs, and a description of what caused the failure, as applicable; and

(C) for a partial external power outage, including a low-voltage or electric transient incident, in which the external power voltage is low enough to trigger the operation of an emergency standby engine, a description of the incident.

(ii) ~~total cumulative hours of operation per calendar year, based on actual readings of engine hour or fuel meter; and~~

(iii) ~~records of periodic annual engine maintenance, including dates maintenance was performed and the nature of the maintenance.~~

~~The records specified in Subsection (g)(2)(i) are not required if total engine operations for any purpose, including emergency situations, do not exceed 52 hours in a calendar year.~~

(3) An owner or operator of an engine subject to this rule, except engines specified in Subsections ~~(b)(2) or (b)(3) or (b)(4),~~ shall maintain a log containing, at a minimum, the following:

(i) records of engine inspection, including dates an inspection was performed; and

(ii) records of annual engine maintenance, including dates maintenance was performed and the nature of the maintenance.

(4) An owner or operator of an engine subject to this rule, except engines specified in Subsections ~~(b)(2) or (b)(3),~~ (b)(4) or (e)(4), shall measure and record at least

once each calendar month the applicable operating parameters identified pursuant to Subsections (e)(1) or (e)(2).

~~(5) An owner or operator of a low-use engine operating on diesel or kerosene fuel and subject to the requirements of Section (d)(1) shall maintain records of total cumulative hours of operation or total fuel consumption per calendar year, as applicable.~~

(5) An owner or operator of any non-emergency engine claiming an exemption pursuant to Subsection (b)(2)(i) shall maintain an operating log and record dates, times and duration of all startups and shutdowns.

(6) An owner or operator of a new, modified, or replacement engine claiming an exemption pursuant to Subsection (b)(2)(ii) shall comply with all of the following:

(i) Record and maintain the dates and times when fuel is being combusted and cumulative operating time for each new, modified, or replacement engine; and

(ii) Record and maintain any emissions data or other operating parameter data acquired or calculated by CEMS, or otherwise required by this rule for the engine.

(7) An owner or operator of an engine subject to the requirements of Subsection (e)(3) shall provide written notification to the Air Pollution Control Officer within 10 calendar days of replacing the engine hour meter. The notification shall include the following:

(i) Old meter's hour reading upon removal;

(ii) Replacement meter's manufacturer name, model, and serial number, if available;

(iii) Current hour reading of the replacement meter upon installation;

(iv) Copy of receipt of new meter, or of installation work order.

(8) An owner or operator of an engine subject to the requirements of Subsection (e)(5) shall comply with all of the following:

(i) Record and maintain all emission readings, and the dates and times of when the readings were recorded;

(ii) Maintain records of all calibrations, including relative accuracy during calibration, and maintenance of any portable analyzer used;

(iii) Maintain a manual of recommended calibration, maintenance and operation as provided by the manufacturer; and

(iv) Provide written notification to the Air Pollution Control Officer within 2 business days of a reading that exceeds the emission standards of Subsection (d)(1).

(69) All records required by Subsections (g)(2) through (g)(5-7) shall be retained in electronic and/or hardcopy format on-site for at least three years and made available to the District upon request.

(10) All records required by Subsection (g)(8) shall be retained in electronic and/or hardcopy format on-site, or off-site in a central location, for at least three years and made available to the District upon request.

(h) **TEST METHODS**

When more than one test method or set of test methods are specified in this section, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

(1) All testing performed to determine compliance with the emission ~~limits~~ standards of Subsections (d)(1), ~~(d)(2)~~ and/or ~~(d)(3)~~, except as provided in Subsection (h)(3) below, shall be conducted in accordance with the following procedures:

(i) Measurement of NO<sub>x</sub>, CO, ~~carbon dioxide (CO<sub>2</sub>)~~ and oxygen content of exhaust gas shall be determined in accordance with the San Diego County Air Pollution Control District Test Method 100 (Test Procedures for the Determination of Nitrogen Oxides, Carbon Monoxide and Diluent Gases by Continuous Emission Monitoring), May 1995, ~~Air Resources Board (ARB) Test Method 100 or equivalent Environmental Protection Agency (EPA) Test Method.~~

(ii) Measurement of VOC emissions shall be determined in accordance with the San Diego County Air Pollution Control District Test Method 25A (Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer), January 1992; EPA Test Methods 25A (Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer), August 2017; and/or the San Diego County Air Pollution Control District Test Method 18 (Measurement of Gaseous Organic Compound Emissions by Gas Chromatography), February 1992; EPA Test Method 18 (Measurement of Gaseous Organic Compound Emissions by Gas Chromatography), August 2017; EPA Test Method 316 (Sampling and Analysis for Formaldehyde Emissions from Stationary Sources in the Mineral Wool and Wool Fiberglass Industries, August 2017; EPA Test Method 323 (Measurement of Formaldehyde Emissions from Natural Gas-Fired Stationary Sources - Acetyl Acetone Derivatization Method), August 2017.

(iii) Emission concentrations of NO<sub>x</sub>, VOC, and CO ~~emission concentrations~~ shall be calculated as an average of three subtests. The averaging period to calculate NO<sub>x</sub> and CO emission concentrations and to determine compliance shall be at least 30 minutes and not more than ~~60-120~~ minutes unless otherwise specified in writing by the Air Pollution Control Officer.

(2) Specifications for California Diesel Fuel, if not provided by a vendor, shall be determined by the test methods specified in 13 CCR, Sections 2281 and 2282 of Title 13 of the California Code of Regulations.

(3) For an engine operating on diesel or kerosene fuel without add-on control equipment and certified by EPA or CARB at an emission rate concentrations equal to or below the applicable emission ~~rate limits standards~~ of ~~Section Subsection (d)(1),~~ measurements of NO<sub>x</sub>, CO, CO<sub>2</sub>, and oxygen content of exhaust gas shall be conducted in accordance with a test method approved by the District and ARB. Until such test method is approved, such engine shall be deemed in compliance with the emission rate limits standards of Section Subsection (d)(1), provided the requirements of Subsection (ib)(4-5) are met.

(4) ~~If a~~ A portable emission analyzer is used to provide emission data pursuant to Subsection (e)(5), the analyzer shall be calibrated, maintained and operated in accordance with a protocol approved in writing by the Air Pollution Control Officer the manufacturer's specifications and recommendations, and the Protocol for the Periodic Monitoring of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Stationary Engines Subject to South Coast Air Quality Management District Rules 1110.2, 1146, and 1146.1, May 2009. Emissions measured during source tests conducted in accordance with Subsection (h)(1) shall supersede the readings recorded with the use of a portable emission analyzer in the event of conflicting results.

(5) Other test methods which are determined to be equivalent to the test methods specified in this rule and approved, in writing, by the Air Pollution Control Officer, California Air Resources Board, and EPA may be used in place of the test methods specified in this rule.

(i) **SOURCE TEST REQUIREMENTS**

~~Except as provided in Subsection (i)(4), s~~Source tests shall be conducted according to the following:

(1) After initial compliance has been determined, any engine subject to the requirements of Subsections (d)(1), ~~(d)(2) and/or (d)(3)~~, except engines specified in Subsections (b)(3), (b)(4), (b)(7), and or (i)(2), shall be source tested at least once every ~~24 months~~ 2 permit years, unless more frequent testing is otherwise specified in writing by the Air Pollution Control Officer.

(2) ~~A new~~ An existing non-emergency gaseous-fueled engine rated at 1,000 bhp or greater and permitted to operate more than 2,000 hours per calendar year shall be tested at least once every permit year, unless more frequent testing is otherwise specified in writing by the Air Pollution Control Officer.

(3) A new non-emergency gaseous-fueled engine rated at 1,000 bhp or greater and permitted to operate more than 2,000 hours per calendar year shall conduct a Relative Accuracy Test Audit (RATA) for its CEMS at least once every permit year, unless more frequent testing is otherwise specified in writing by the Air Pollution Control Officer.

~~(234)~~ Emissions source testing shall be conducted using the test methods specified in Section (h) – Test Methods and a source test protocol approved in writing by the Air Pollution Control Officer prior to testing.

~~(345)~~ Emissions source testing shall be performed at no less than 80 ~~percent~~ % of the brake horsepower rating. If an owner or operator of an engine demonstrates to the satisfaction of the Air Pollution Control Officer that the engine does not operate at these conditions, then emissions source testing shall be performed at the highest achievable continuous ~~brake~~ horsepower rating, or under the typical duty cycle or operational mode of the engine. The horsepower calculated during the emissions source test shall be used to determine compliance with the emission standards of Subsection (d)(1).

~~(4) Notwithstanding the requirements of Subsection (i)(1), any engine operating on diesel or kerosene fuel without add-on control and certified by EPA or ARB at emission rates equal to or below the applicable emission rate limits of Section (d) shall not require an initial or periodic source test, until an appropriate test method is approved by the District and ARB, provided the following requirements are met:~~

~~(i) The engine family has been tested and certified according to an EPA or ARB approved procedure, and the certification documents are provided to the District.~~

~~(ii) The engine family does not participate in the federal (ABT) program specified in 40 CFR 89, Subpart C and adopted by reference by ARB.~~

~~(iii) The engine and its emission control system are maintained as specified in Section (f).~~

~~(iv) There is no evidence of engine tampering.~~

(56) For the purposes of a compliance determination based on CEMS data, the averaging period to calculate NOx and CO emission concentrations shall be one clock hour.

(j) **COMPLIANCE SCHEDULE**

~~(1) For an engine operating on diesel fuel, comply with the requirements of Subsection (d)(4) by May 15, 2001.~~

(21) The owner or operator of an existing engine subject to the requirements of ~~this rule~~ Subsection (e)(5) shall meet the following increments of progress: by (24 months after date of adoption), submit to the Air Pollution Control Officer documentation which demonstrates that the engine is in compliance with Subsections (e)(5) and (g)(8).

(i) ~~By May 15, 2001, submit to the Air Pollution Control Officer an application to modify conditions on the Permit to Operate or to convert a Certificate of Registration to a Permit to Operate, as necessary to comply with the applicable requirements of this rule. The application shall include the following information for the engine that will be evaluated for compliance with this rule:~~

~~(A) The information required by Section (g)(1),~~

~~(B) emission rate data and source of such data, and~~

~~(C) description of how compliance will be achieved (e.g. retrofit, replacement).~~

~~(ii) By November 15, 2002, submit to the Air Pollution Control Officer documentation which demonstrates that the engine is in compliance with the Section (d)(1) through (d)(3) emission limits for NO<sub>x</sub>, CO and VOC, and all other applicable requirements of this rule.~~

(32) For a new or replacement engine, including a new or replacement engine operating less than 200 hours per calendar year or a new or replacement emergency standby engine, comply with all applicable requirements of this rule upon installation and startup.